

# Assignment #2 – Machine Learning

## 888102 – Big Data for Business

Coursework Marks 15%

Students are required to complete the instructions below (also see CW2\_instructions.doc in Teams) and answer all parts and questions below.

### Part A: Machine Learning and Artificial Intelligence

Write a summary of machine learning and artificial intelligence in big data (about 200-250 words), for help use the presentation “Machine Learning and Artificial Intelligence in Big Data” (PowerPoint file in Teams Files). Include what you think is relevant and the most important information. You are allowed to add additional information and your opinion but make sure it is relevant and it is original.

**Do not copy & pasted text**

### Part B: Practical Machine Learning

Follow the instructions in CW2\_instructions.doc to create 5 screenshots. Use these screenshots to help answer the following questions:

#### B.1. Linear Regression

1. Explain the two primary statistics about a linear regression line (in Orange called ‘x coef’ and ‘intercept coef’), and how do they help us predict values?
2. Evaluate your linear regression model. Use your screenshots to explain
  - a. the predictions, and
  - b. an evaluation metric (e.g. one of MSE, RMSE, MAE, or  $R^2$ )

#### B.2. K-Nearest Neighbour

3. Explain how k-nearest neighbour works, and why the results (e.g. in Orange) can sometimes be wrong.

#### B.3. Logistic Regression

4. Explain the resulting confusion matrix created using logistic regression.

#### Deadline

Coursework set

Thursday 29<sup>th</sup> September 2022

Coursework submission Date:

**Friday 21<sup>st</sup> October 2022**

#### Deliverables:

- One Microsoft Word document or equivalent with your answers from part A and part B.
- Any screenshots (e.g. Orange) or copied & pasted into the Word document.

All coursework should be submitted on the submission date or before, either via Teams or to [drcodie@gmail.com](mailto:drcodie@gmail.com). Remember to include the course, your name and your student ID when submitting coursework.